

## WESTERN WHITE PINE SERIES

*Pinus monticola*

### PIMO3

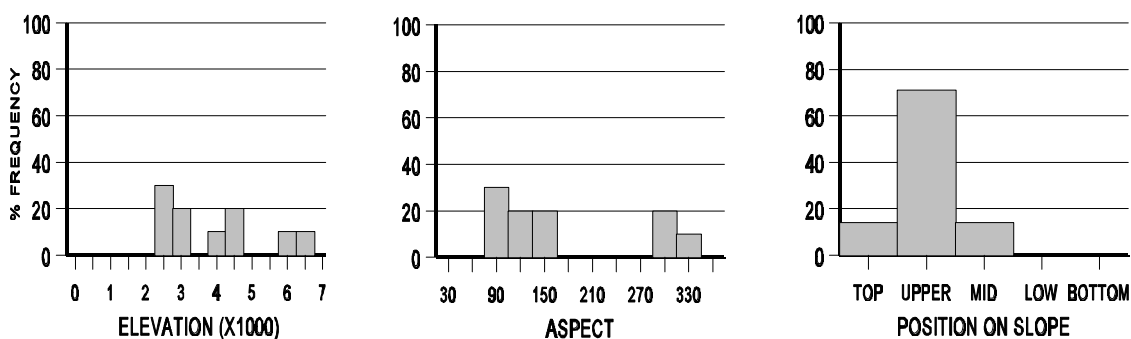
Lisa A. McCrimmon

Western white pine grows along the Pacific coast from coastal British Columbia southward through Washington and Oregon to the Siskiyou Mountains along the Coast. It also grows from the Washington Cascades to the Sierra Nevada. In the Siskiyou Mountains and the southern Oregon Cascades, western white pine occurs occasionally in many stands.

The Western White Pine Series is found in the Siskiyou Mountains primarily on ultramafic soils. Its occurrences are rare, disjunct, and generally limited in acreage. Western White Pine-Tanoak/Huckleberry Oak/Common Beargrass is intermixed with the Tanoak Series and Western White Pine-Jeffrey Pine/Huckleberry Oak/Common Beargrass is intermixed with the Jeffrey Pine Series. Western White Pine/Common Beargrass grades into the Shasta Red Fir Series. The combination of western white pine blister rust, mountain pine beetles, drought, and fire suppression may result in the reduction or loss of western white pine as a dominant climax species in parts of the Siskiyou.

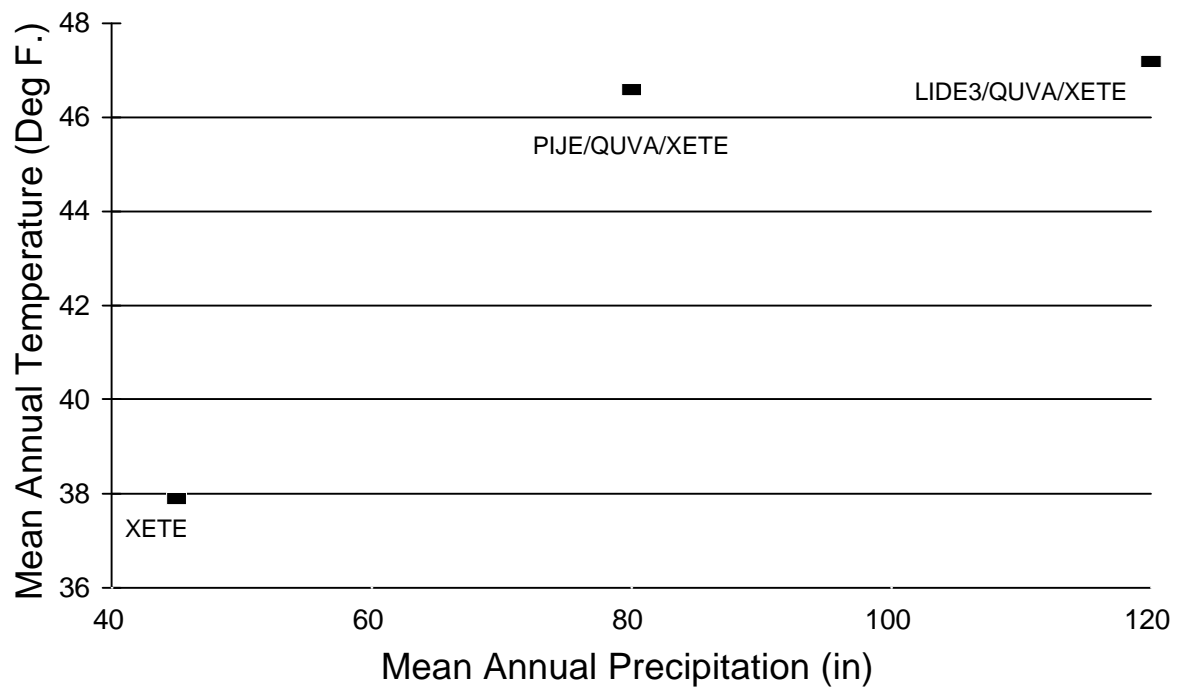
In the southern Oregon Cascades, western white pine is only found as an associate in stands and not as a dominant species in the regeneration layer, so there are no associations described.

Elevation ranges from approximately 2640 feet to 6680 feet in the Siskiyou. All aspects are represented, and slope ranges from flat to steep. Position ranges from ridge tops to the middle one-third of the slope.



The Western White Pine Series can occur in a variety of climates ranging from warm/wet to cool/dry. Average annual temperature ranges from 38 degrees F to 49 degrees F and averages 44 degrees F. Average annual precipitation ranges from 45 inches to 130 inches and averages 90 inches. The relative environments of the plant associations are shown on page PIMO3 2. Each association is plotted by average annual temperature and average annual precipitation.

Parent material is serpentine, peridotite, hornblend, or basalt. Soils range from shallow to moderately deep. Surface gravel cover ranges from 0 to 30 percent, averaging 11 percent. Surface rock cover ranges from 5 to 80 percent, averaging



41 percent. Exposed bedrock cover ranges from 0 to 7 percent, averaging 4 percent. Bare ground ranges from 0 to 10 percent, averaging 3 percent. Litter cover ranges from 40 to 99 percent, averaging 81 percent. Moss cover ranges from 0 to 20 percent, averaging 4 percent.

Either western white pine or Jeffrey pine may be the dominant species in the overstory of the Western White Pine Series. Western white pine regeneration is abundant in the understory. On warmer, wetter sites, tanoak is present, and on warmer, drier sites, tanoak is absent. On the cooler, drier sites, Shasta red fir and white fir are present. Huckleberry oak, red huckleberry, pinemat manzanita, pygmy Oregon grape, and box-leaved silk-tassel occur frequently throughout the Series on warmer sites, with pinemat manzanita and western serviceberry occurring frequently on cooler sites. Common beargrass occurs frequently on all associations.

Total species richness (the number of species of vascular plants) is calculated for each Association. The average total species richness for the Western White Pine Series ranges between 29 and 34, with an average of 32 species. Western White Pine-Tanoak/Huckleberry Oak/Common Beargrass and Western White Pine/Beargrass both have an average total species richness of 34 species. Western White Pine-Jeffrey Pine/Huckleberry Oak/Common Beargrass has an average total species richness of 29 species.

Estimates of total cover by vegetation layer were made for wildlife interpretations. Upper layer tree cover ranges from 10 percent in Western White Pine-Tanoak/Huckleberry Oak/Common Beargrass to 30 percent in Western White Pine/Beargrass and averages 17 percent for the Series. Mid-layer tree cover ranges from 23 to 35 percent and averages 30 percent. Lower layer tree cover ranges from 10 to 73 percent and averages 49 percent. High shrub cover ranges from 0 to 28 percent and averages 14 percent. Low shrub cover ranges from 3 to 45 percent and averages 28 percent. Herb/grass layer cover ranges from 13 to 88 percent and averages 37 percent.

Three final plant associations have been identified for the Series in the Siskiyou. They were described from 10 Forest Service plots. The following shows the relationship of draft and final plant associations. The draft associations are listed, with final associations below, each in order of most to least common, with the percentage of plots that make up each association (refer to Methods section).

PIMO/XETE (N=4)  
 PIMO3/XETE (50%)  
 ABCO/XETE (25%)  
 TSME-ABMAS/VAME/CHUM (25%)

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#### KEY TO THE WESTERN WHITE PINE PLANT ASSOCIATIONS

- |     |  |                                       |
|-----|--|---------------------------------------|
| 1a. | Huckleberry oak (QUVA) present. Shasta red fir (ABMAS) absent. | 2                                     |
| 1b. | Huckleberry oak (QUVA) absent. Shasta red fir (ABMAS) present. | PIMO3/XETE<br>Page PIMO3 4            |
| 2a. | Tanoak (LIDE3) present.  | PIMO3-LIDE3/QUVA/XETE<br>Page PIMO3 6 |
| 2b. | Tanoak (LIDE3) absent.   | PIMO3-PIJE/QUVA/XETE<br>Page PIMO3 8  |

## WESTERN WHITE PINE/COMMON BEARGRASS

*Pinus monticola*/*Xerophyllum tenax*

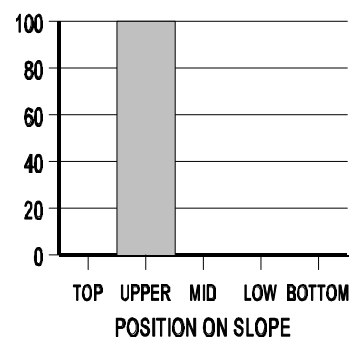
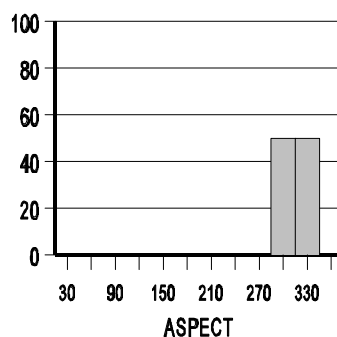
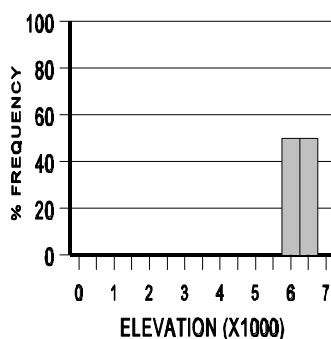
PIMO3/XETE (N=2; FS=2)



Distribution. Western White Pine/Common Beargrass occurs on Red Mountain on the Applegate Ranger District, Rogue River National Forest, and may also occur on outcrops of peridotite in the Siskiyou Mountains.

Distinguishing Characteristics. Western White Pine/Common Beargrass is found at low temperatures and low precipitation relative to other associations in the Series. Western white pine dominates the overstory and understory with Shasta red fir present, and common beargrass dominates the shrub/herb/grass layer with covers averaging 60 percent.

Soils. Parent material is usually peridotite. Soils are shallow to moderately deep, with an average depth of 18 inches. Average surface rock cover is 27 percent, with 6 percent gravel. Bare ground exposure and surface bedrock both average 5 percent on two plots.



Environment. Elevation averages 6580 feet. Western White Pine/Common Beargrass occurs on west to northwest aspects, but may occur on other aspects. Slope averages 40 percent and ranges from 23 to 57 percent. Upper one-third slope positions predominate.

Vegetation Composition and Structure. Total species richness averages 34 species. Overstory and understory are dominated by western white pine. In the overstory, Shasta red fir occurs commonly, and in the understory, white fir and Shasta red fir occur frequently. Mountain hemlock, Douglas-fir, and incense-cedar are common. Shrub richness is very low for the Series, with western serviceberry and pinemat manzanita frequently occurring with low covers. Herb/grass richness is very high for the Series. Common beargrass, sedge species, common yarrow, leafy pedicularis, and mountain monardella frequently occur. Common beargrass has high cover, averaging 60 percent. Moss cover averages 1 percent.

Upper layer tree cover is high for the Series, averaging 30 percent. Mid-layer and lower layer tree covers are low, averaging 23 and 10 percent, respectively. High shrub cover is absent, and low shrub cover is low at 3 percent. Herb/grass cover is high, ranging from 80 to 95 percent, with an average of 88 percent.

Common name	Code	Constancy	Cover	Richness
<u>Overstory trees</u>				2
Western white pine	PIMO3	100	35	
Shasta red fir	ABMAS	50	2	
<u>Understory trees</u>				5
Western white pine	PIMO3	100	11	
White fir	ABCO	100	2	
Shasta red fir	ABMAS	100	2	
Mountain hemlock	TSME	50	1	
Douglas-fir	PSME	50	1	
Incense-cedar	CADE27	50	1	
<u>Shrubs</u>				3
Western serviceberry	AMAL2	100	2	
Pinemat manzanita	ARNE	100	2	
<u>Herbs</u>				26
Common beargrass	XETE	100	60	
Sedge species	CAREX	100	11	
Common yarrow	ACMI2	100	3	
Leafy pedicularis	PERA	100	2	
Mountain monardella	MOOD	100	2	
Rush species	JUNCU	50	30	
Wild ginger	ASCA2	50	15	
Applegate's paintbrush	CAAP4	50	10	
Fescue species	FESTU	50	10	
Balloon milk-vetch	ASWH	50	10	
Sulphur buckwheat	ERUM	50	6	
Nevada cinquefoil	POGLN2	50	5	
Buttercup species	RANUN	50	5	
Showy aster	ASCO3	50	5	
Micromeria species	MICRO13	50	5	
Goosefoot violet	VIPU4	50	4	



## WESTERN WHITE PINE-TANOAK/HUCKLEBERRY OAK/COMMON BEARGRASS

*Pinus monticola-Lithocarpus densiflorus/Quercus vaccinifolia/Xerophyllum tenax*

PIMO3-LIDE3/QUVA/XETE (N=3; FS=3)

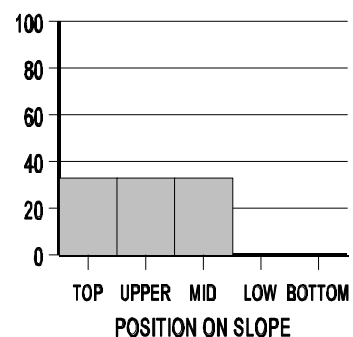
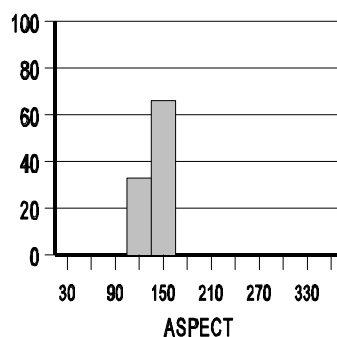
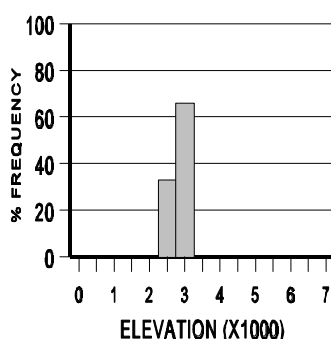


Distribution. Western White Pine-Tanoak/Huckleberry Oak/Common Beargrass occurs on the Chetco and Illinois Valley Ranger Districts, Siskiyou National Forest. It may also occur on adjacent Bureau of Land Management lands.

Distinguishing Characteristics. Western White Pine-Tanoak/Huckleberry Oak/Common Beargrass is found at warm temperatures and high precipitation relative to other associations in the Series. The presence of tanoak and California laurel both indicate moist conditions.

Soils. Parent materials can be serpentine, hornblend, or basalt. Soils are shallow to moderately deep, with an average depth of 18 inches. Average surface rock cover is 18 percent, with 16 percent gravel, and 4 percent exposed bedrock.

Environment. Elevation averages 3160 feet. Western White Pine-Tanoak/Huckleberry Oak/Common Beargrass occurs on southeast aspects. Slope averages



23 percent and ranges from 7 to 50 percent. Ridge top to middle one-third slope positions predominate.

Vegetation Composition and Structure. Total species richness averages 34 species. Overstory tree layer is dominated by western white pine, with Douglas-fir and knobcone pine common, and sugar pine, Jeffrey pine, Port-Orford-cedar, and western hemlock occasional. Western white pine dominates the understory, with tanoak and California laurel frequently occurring. Port-Orford-cedar, Douglas-fir, and knobcone pine are common. Jeffrey pine, incense-cedar, sugar pine, lodgepole pine, ponderosa pine, and golden chinquapin occur occasionally. In the shrub layer, huckleberry oak, red huckleberry, common juniper, pinemat manzanita, and pygmy Oregongrape are frequently found. In the herb/grass layer, common beargrass, toothleaf pyrola, and whipplevine are frequently found. Sedge species, slender-tubed iris, obscure bedstraw, and western starflower are common. Moss cover averages 8 percent.

Upper layer tree cover is low for the Series, averaging 10 percent. Mid-layer tree cover is intermediate, averaging 32 percent, and lower layer tree cover is high, averaging 60 percent. High shrub and low shrub cover are both intermediate, averaging 28 and 32 percent, respectively. Herb/grass cover is low, ranging from 7 to 17 percent, with an average of 13 percent.

Common name	Code	Constancy	Cover	Richness
<u>Overstory trees</u>				3
Western white pine	PIMO3	100	17	
Douglas-fir	PSME	67	8	
Knobcone pine	PIAT	67	6	
<u>Understory trees</u>				7
Western white pine	PIMO3	100	28	
Tanoak	LIDE3	100	16	
California laurel	UMCA	100	3	
Port-Orford-cedar	CHLA	67	11	
Douglas-fir	PSME	67	10	
Knobcone pine	PIAT	67	4	
<u>Shrubs</u>				11
Huckleberry oak	QUVA	100	23	
Red huckleberry	VAPA	100	8	
Common juniper	JUCO6	100	5	
Pinemat manzanita	ARNE	100	5	
Pygmy Oregongrape	BEPU	100	2	
Coffeeberry	RHCA	67	5	
Box-leaved silk-tassel	GABU2	67	4	
Western serviceberry	AMAL2	67	1	
Baldhip rose	ROGY	67	1	
<u>Herbs</u>				12
Common beargrass	XETE	100	3	
Toothleaf pyrola	PYDE	100	1	
Whipplevine	WHMO	100	1	
Toothleaf pyrola	PYDE	100	1	
Sedge species	CAREX	67	10	
Slender-tubed iris	IRCH	67	2	

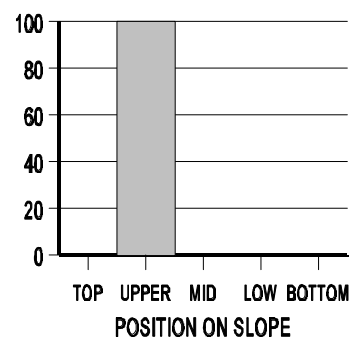
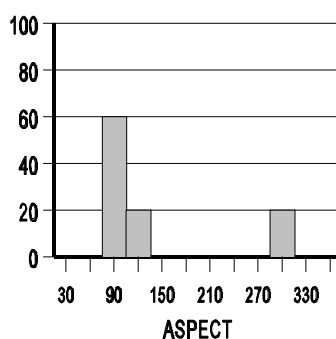
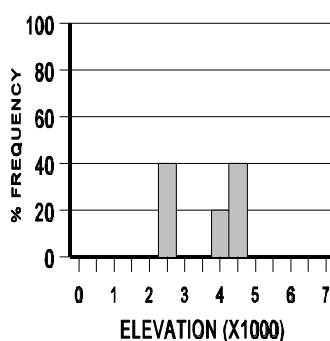
WESTERN WHITE PINE-JEFFREY PINE/HUCKLEBERRY OAK/COMMON BEARGRASS  
*Pinus monticola*-*Pinus jeffreyi*/*Quercus vaccinifolia*/*Xerophyllum tenax*  
 PIMO3-PIJE/QUVA/XETE (N=5; FS=5)



Distribution. Western White Pine-Jeffrey Pine/Huckleberry Oak/Common Beargrass occurs on the Galice and Illinois Valley Ranger Districts, Siskiyou National Forest. It may also occur on adjacent Bureau of Land Management lands.

Distinguishing Characteristics. Western White Pine-Jeffrey Pine/Huckleberry Oak/Common Beargrass is found at warm temperatures and moderate precipitation relative to other associations in the Series. Average annual temperature is slightly less than Western White Pine-Tanoak/Huckleberry Oak/Common Beargrass, however, average annual precipitation is much less, 80 inches for this Association as compared to 120 inches for Western White Pine-Tanoak/Huckleberry Oak/Common Beargrass. Western White Pine-Jeffrey Pine/Huckleberry Oak/Common Beargrass lacks tanoak and has less constancy and cover of other high moisture indicators.

Soils. Parent material is serpentine or peridotite. Soils are moderately deep, with an average depth of 24 inches. Average surface rock cover is 59 percent, with 8





percent gravel. One plot has 10 percent bare ground cover.

Environment. Elevation averages 3800 feet. Western White Pine-Jeffrey Pine/Huckleberry Oak/Common Beargrass occurs on east, southeast, and west aspects, but may occur on other aspects as well. Slope averages 27 percent and ranges from 5 to 50 percent. Upper one-third slope positions predominate.

Vegetation Composition and Structure. Total species richness averages 29 species. Overstory tree layer is dominated by Jeffrey pine, with incense-cedar, western white pine, and Douglas-fir frequently occurring. The understory is dominated by western white pine, with incense-cedar, Jeffrey pine, and Douglas-fir frequently occurring. California laurel, Port-Orford-cedar, and white fir occur occasionally. The shrub layer is dominated by huckleberry oak with moderate to high covers. Box-leaved silk-tassel, pinemat manzanita, pale serviceberry, and pygmy Oregongrape are frequent. Squaw carpet and red huckleberry are common. In the herb/grass layer, common beargrass and western starflower are frequent, with Oregon trillium, rock fern, slender-tubed iris, and woodland tarweed common. Moss cover averages 3 percent.

Upper layer and mid-layer tree covers are intermediate for the Series, averaging 15 and 35 percent, respectively. Lower layer tree cover is high, averaging 73 percent. High shrub cover is low, averaging 8 percent, however, low shrub cover is high, averaging 45 percent. Herb/grass cover is low for the Series, ranging from 15 to 30 percent, with an average of 23 percent.

Common name	Code	Constancy	Cover	Richness
<u>Overstory trees</u>				3
Jeffrey pine	PIJE	100	9	
Incense-cedar	CADE27	100	6	
Western white pine	PIMO3	100	5	
Douglas-fir	PSME	100	3	
<u>Understory trees</u>				6
Western white pine	PIMO3	100	14	
Incense-cedar	CADE27	100	10	
Jeffrey pine	PIJE	100	6	
Douglas-fir	PSME	100	4	
<u>Shrubs</u>				8
Huckleberry oak	QUVA	100	39	
Box-leaved silk-tassel	GABU2	80	15	
Pinemat manzanita	ARNE	80	8	
Pale serviceberry	AMPA2	80	3	
Pygmy Oregongrape	BEPU	80	2	
Squaw carpet	CEPR	60	6	
Red huckleberry	VAPA	60	2	
Whiteleaf manzanita	ARVI4	40	23	
<u>Herbs</u>				14
Common beargrass	XETE	80	12	
Western starflower	TRLA6	80	1	
Oregon trillium	TRRI2	60	2	
Rock fern	ASDE6	60	1	
Slender-tubed iris	IRCH	60	1	
Woodland tarweed	MAMA	60	1	